

Digital Clinicopathologic Conferences: Reducing Cost In Resident Education

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The traditional clinicopathologic conference (CPC) involves the presentation of a case by a member of the involved clinical service, review of relevant x-ray images by a radiologist, and discussion of the pathologic findings by a pathologist. An overall summary or commentary may be provided by one of the involved discussants or an invited speaker. This format has been used for decades. We have developed a collaborative digital presentation format that allows for rapid assembly of the clinical materials, with subsequent display via laptop or projection device to small or large groups.

The key element of this system is the use of a multimedia assembly program to provide a platform where the individual digitized components can be rapidly combined into a module suitable for subsequent editing and display. The contributing departments are notified by E-mail that particular images or data are required. These images are digitized via a video card connected to a microscope mounted camera, or to a black and white TV camera over a viewbox in the case of x-rays. They are enhanced using image processing software and saved on a central server in files accessible to the physician initiating the request. The digitized files are then imported into the multimedia module, where they are available for subsequent editing. During the editing process each contributing faculty member can provide text, references, or personal commentary that can also be imported. Items such as graphic display of clinical parameters (e.g. fever curves) can be scanned, re-sized, and edited for presentation.

In an era of shorter hospital stays, increased time off for residents, and outpatient performance of part of

many diagnostic workups, the utility of the traditional CPC format has lessened. The chances of simultaneously gathering the individual residents and attendings actually involved with the case continue to decline. The impact on others is weakened by the often lengthy interval between the generation of the case materials and their actual presentation. The collaborative digital system provides for more immediate feedback to the residents directly involved in the case, as well as to the usually larger group who may have heard the case discussed previously in other settings such as morning report or sign-out rounds. It allows for multiple viewings, so that all interested parties may benefit, regardless of subsequent scheduling problems. Time from identification of a suitable case to its actual presentation is reduced, partly because faculty can work simultaneously to prepare their contributions, and partly because subsequent presentation does not depend on a fixed conference time. Notification of need for images and their subsequent availability is done via E-mail. This has been very convenient for the faculty, some of whom have contributed materials from off campus locations. This is an important issue for faculty who are heavily scheduled

The quality of images obtained has been excellent, with teaching-quality display via both laptop screen and LCD panel projection device. As presentation requires only a single faculty member at a time there is a major savings of faculty time. We anticipate further time savings in the future as we gradually acquire an archive of digitized normal images to use for side-by-side comparisons, and as we gain more experience with transfer of the image files over our network.